

Defense Information Infrastructure (DII)
Common Operating Environment (COE)

**Software Version Description (SVD) for
the Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)**

Document Version 1.0

November 14, 1997

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1. Scope

1.1 Identification

This Software Version Description (SVD) describes the Defense Information Infrastructure (DII) Common Operating Environment (COE) Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0). The DII COE Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0) is intended to be used on hardware running the Windows NT 4.0 Operating System.

The DII COE developer's toolkit is a Government off-the-shelf (GOTS) package.

NOTE: Throughout this document, `Courier` font is used to indicate entries to be typed at the keyboard, NT commands, file and directory names, and screen text. For example:

The file is located in the `DII_DEV` directory.

1.2 System Overview

Defense Information Infrastructure (DII) Common Operating Environment (COE) developer's tools were developed to aid the developer in the creation and ultimate installation of DII COE segments. The tools make software integration a largely automated process, thus significantly reducing development time while automatically allowing detection of potential integration and runtime problem areas.

By default, developer's tools are located underneath the `DII_DEV` directory and are distributed as part of the Developer's Toolkit. This delivery consists of the following items:

- C 8 developer tools (`CalcSpace`, `CanInstall`, `MakeInstall`, `TestInstall`, `TestRemove`, `TimeStamp`, `VerifySeg`, and `VerUpdate`)
- C `include` files, located in the `include` directory
- C Public Application Programmer Interface (API) libraries, located in the `libs` directory
- C Public API examples, located in the `examples` directory
- C 10 sample segments, located in the `SampleSegments` directory.

Developer's Tools

The developer's tools can be run from the command line, and some can be run from other code using published APIs. The following tools are included in the DII COE Version 3.2.0.0

Developer's Toolkit Version 3.2.0.1 delivery. The *DII COE Version 3.2.0.0 Programming Guide* describes these tools and their functionality in more detail.

CalcSpace Version 1.0.0.7—Computes the space required for the segment specified and updates the hardware descriptor.

CanInstall Version 1.0.0.9—Tests a segment to see if it can be installed, which means that all required segments must already be on the disk, and the disk cannot have any conflicting segments.

MakeInstall Version 1.0.1.8—Writes one or more segments to an installation medium or packages the segments for distribution over the network.

TestInstall Version 1.0.0.10—Installs a segment (temporarily) that already resides on disk.

TestRemove Version 1.0.0.9—Removes a segment that was installed by TestInstall.

TimeStamp Version 1.0.0.9—Puts the current time and date into the `VERSION` descriptor of the specified segment.

VerifySeg Version 1.0.0.10—Validates that a segment conforms to the rules for defining a segment.

VerUpdate Version 1.0.1.8—Increments the segment version number and updates the date and time in the `VERSION` descriptor of the specified segment.

NOTE: The environment variable `TOOLS_DATA` must be set and pointing to `DII_DEV/data` to allow MakeInstall to access this file.

examples Directory

The `examples` directory contains a list of example C programming files that show developers how to use the public APIs. The required public `include` files are also shown. Examples are located in the `DII_DEV/examples` directory.

include Directory

Public `include` files are used to compile with the public APIs. Public `include` files are located in the `DII_DEV/include` directory.

libs Directory

Public API libraries are located in the `DII_DEV/libs` directory.

For DII COE Developer's Toolkit Version 3.2.0.1 related issues, contact the DII COE Hotline at the OSF Support Center (OSC) by one of the following methods:

- C Telephone (703) 735-8681
- C Facsimile (703) 735-3080
- C Web site: <http://spider.osf.disa.mil/dii/hotline/index.html>.

1.3 Product Information

- Product Qualification:** The DII COE Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0) was validated and accepted by the INRI Engineering Group (Chesapeake, Virginia) in accordance with the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Plan (STP) for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1*, Document Control No. DII.3200.NT40.P1.STP-1, November 14, 1997. The qualification that the segment is ready for delivery was issued at the INRI DII COE Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 Delivery Readiness Review on November 13, 1997.
- Product Restrictions:** Copyright Inter-National Research Institute, Inc. 1997, All Rights Reserved. This material may be reproduced by or for the U.S. Government pursuant to the copyright license under the clause at DFARS 252.227-703 (OCT 1988). No other licenses are required for using this software. No freeware or shareware is included.
- Product Dependencies:** The DII COE Developer's Toolkit Version 3.2.0.1 requires the Windows NT 4.0 Operating System and the DII COE Kernel Version 3.2.0.0 Patch 1 (Windows NT). No implementation constraints or limitations on system configuration apply.

2. Referenced Documents

The following documents are referenced in this Software Version Description (SVD):

- C DII.3200.NT40.PG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 Programming Guide (Windows NT 4.0)*, June 13, 1997
- C DII.3200.NT40.P1.STP-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Plan for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.DTK.3201.SVD-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Version Description for Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.DTK.3201.IP-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Installation Procedures for Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.P1.STD-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Description for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.P1.STR-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Report for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.AG-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 System Administrator's Guide (Windows NT 4.0)*, June 13, 1997

3. Version Description

3.1 Inventory of Materials Released

Magnetic media: Two copies of two 3.5" floppy diskettes containing the executable files for DII COE Developer's Toolkit Version 3.2.0.1 for Windows NT 4.0. These diskettes also contain files, libraries, example source files for the public Application Programmer Interfaces (APIs), and sample segments.

Soft-copy Documentation: A 3.5" floppy diskette (WordPerfect 6.0 for Windows format) for each of the following documents:

- C DII.3200.NT40.DTK.3201.SVD-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Version Description for Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.DTK.3201.IP-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Installation Procedures for Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.P1.STP-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Plan for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.P1.STD-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Description for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997
- C DII.3200.NT40.P1.STR-1, *Defense Information Infrastructure (DII) Common Operating Environment (COE) Software Test Report for Kernel Version 3.2.0.0 Patch 1 and Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0)*, Document Version 1.0, November 14, 1997

Hard-copy Documentation: Two hard copies of the aforementioned documents.

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NOTE: Although not part of this developer's toolkit delivery, the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Version 3.2.0.0 Programming Guide (Windows NT 4.0)*, Document Control No. DII.3200.NT40.PG-1, June 13, 1997, provides relevant information on how to use the developer tools.

3.2 Inventory of Software Contents

8 Developer Tools

File	Size	Version	Date
CalcSpace.exe	85K	1.0.0.7	11/10/97
CanInstall.exe	134K	1.0.0.9	11/10/97
MakeInstall.exe	232K	1.0.1.8	11/10/97
TestInstall.exe	282K	1.0.0.10	11/10/97
TestRemove.exe	179K	1.0.0.9	11/10/97
TimeStamp.exe	69K	1.0.0.9	11/10/97
VerifySeg.exe	194K	1.0.0.10	11/10/97
VerUpdate.exe	75K	1.0.1.8	11/10/97
NTMakeInstall.d11	158K	N/A	11/10/97
Total	1.36MB		

include files

File	Size	Date
DIITools.h	12 K	10/9/97
Total	12 KB	

Public API libraries

File	Size	Date
COECom.lib	78 K	10/30/97
COESeg.lib	72 K	10/30/97
COETools.lib	408 K	10/30/97
COEUserPrompts.lib	5 K	10/30/97
Total	563 KB	

Public API Examples

File	Size	Date
COEAskUser_example.c	2 K	10/9/97
COEFindSeg_example.c	2 K	10/9/97
COEInstError_example.c	2 K	10/9/97
COEMsg_example.c	2 K	10/9/97
COEPromptPasswd_example.c	2 K	10/9/97
COEPrompt_example.c	2 K	10/9/97
COEUpdateHome_example.c	1 K	10/9/97
Total	13 KB	

10 Sample Segments

Folder	Size	Date
AcctGrp	5.8 K	11/6/97
Agg	5.8 K	11/6/97
AggChild	5.9 K	11/6/97
COTS	5.4 K	11/6/97
DataGlobal	5.2 K	11/6/97
DataLocal	5.1 K	11/6/97
DataSegment	5.0 K	11/6/97
Patch	9.0 K	11/6/97
SW	5.6 K	11/6/97
SW2	4.6 K	11/6/97
Total	57.4 K	
Overall Size Total	2.09 MB	

3.3 Changes Installed

The DII COE Developer's Toolkit Version 3.2.0.1 for Windows NT 4.0 encompasses the following changes:

VerifySeg tool was modified to require 4-digit year designations.

These changes are detailed in the following table. The software changes are listed in order of INRI Number.

DII COE Developer's Toolkit Version 3.2.0.1 (Windows NT 4.0) Software Changes	
Total Software Changes: [1]	
INRI Number:	RTO00001741
Agency Number:	D70492
Short Description:	Four-digit years.
Long Description:	Page 5-98, the 'Note:' states that four-digit years are permitted and that VerifySeg will issue a warning for any segment that uses less than 4 digits. The VerifySeg issues an error if you attempt to use four-digit years.

3.4 Waivers

The following document waivers have been approved since these documents do not apply to the Developer's Toolkit. References to other documents are provided as applicable below:

- C Software Product Specification (SPS)
- C Database Design Document (DBDD)
- C System Administrator's Manual (SAM): See the *DII COE Version 3.2.0.0 System Administrator's Guide (Windows NT 4.0)* for information on the DII COE kernel.
- C User's Manual (UM)/Operator's Manual (OM): This manual does not apply to the Windows NT Developer's Toolkit.
- C Programmer's Manual (PM): See the *DII COE Version 3.2.0.0 Programming Guide (Windows NT 4.0)*. No software changes between Version 3.2.0.0 and Version 3.2.0.0 Patch 1 affect this manual.
- C API Reference Manual (APIRM): This manual does not apply since no APIs are provided by the developer's toolkit.
- C Software Test Plan (STP): The STP will cover both kernel and DTK testing.
- C Software Test Description (STD): The STD will cover both kernel and DTK testing.
- C Software Test Report (STR): The STR will cover both kernel and DTK testing.
- C Software Requirements Specification (SRS)

3.5 Adaptation Data

None.

3.6 Installation Instructions

For instructions on installing this DII COE Developer's Toolkit Version 3.2.0.1, refer to the *Defense Information Infrastructure (DII) Common Operating Environment (COE) Installation Procedures for Developer's Toolkit Version 3.2.0.1 (Window NT 4.0)*, Document Control No. DII.3200.NT40.DTK.3201.IP-1, Document Version 1.0, November 14, 1997. This Developer's Toolkit requires the system to already be loaded with the Windows NT 4.0 Operating System and the DII COE Kernel Version 3.2.0.0 Patch 1 (Windows NT 4.0).

The DII COE Developer's Toolkit Version 3.2.0.1 requires 1.94 MB of disk space.

3.7 Possible Problems and Known Errors

None.

4. Notes

This section provides user release notes related to the DII COE Developer's Toolkit Version 3.2.0.1.

4.1 General Developer's Toolkit Release Notes

- . 1. Because the registry and directory structures were modified for the DII COE Version 3.2.0.0 release, the CanInstall, MakeInstall, TestInstall, and TestRemove tools will not function properly on systems that have previous versions of the DII COE Kernel installed. These tools should be used with the DII COE Kernel Version 3.2.0.0 or later.
2. During tool execution, some filenames are displayed with incorrect path separator characters [i.e., a forward slash (/) instead of a backward slash (\)]. This does not affect segment operation.
3. The SegName descriptor has two new keywords that can be used by COTS segments: \$COMPANY_NAME and \$PRODUCT_NAME. These new keywords are optional.

4. Some executables may cause resource contention problems when used during `PostInstall` processing. These resource contention problems occur when the `PostInstall` executable tries to use a resource that is locked by the `COEInstaller`. When this occurs, `PostInstall` appears to suspend the installation. Developers should avoid using a `PostInstall` executable that creates this problem. If this cannot be avoided, the developer can create a `PostInstall` executable that launches the program using a Windows API function, such as `CreateProcess`, which starts a process without waiting for it to return. This will allow the `COEInstaller` to continue processing before `PostInstall` is complete. This will execute the `PostInstall` out of the normal sequence of events and should be used with caution.
5. The `COEInstaller` will terminate unexpectedly while reading the table of contents when the `MakeInstall` media contains a patch segment and the affected segment is not already installed on the machine. The workaround is to *make sure the affected segment is already installed* on the machine before attempting to read `MakeInstall` media containing a patch for the segment.

4.2 **MakeInstall Tool**

1. The combined size of the `SegDescrip` directories for `MakeInstall` disk sets must be less than 1.44 MB.
2. `MakeInstall` must use matching names when defining segment names and prefixes. The segment names used to create a segment or distribution disk must match exactly the names in the `SegName` file. Although the `MakeInstall` disk will be created, the segments, when installed, will not appear in the `Currently Installed Segments` panel of the `Installer` window.
3. `MakeInstall` does not allow segments and their descriptors to be checked out from the repository.
4. `MakeInstall` does not support the `-Cd`, `-Co`, `-dio`, `-Dio`, `-ot`, `-R`, `-so`, `-So`, and `-T` command line options.
5. In order not to compress a segment, the `$NOCOMPRESS` option must be specified in the direct `SegDescrip` entry in the `SegInfo` file. `MakeInstall` no longer prompts the user with a compress option; instead, the tool automatically references the `SegDescrip` entry.
6. Components of an Aggregate segment (parent and all children) must be contained within one of the two areas of the distribution file or completely external to the distribution file.
7. `MakeInstall` cannot write to a floppy device if the device was used by the `Installer`

and the user has not exited the Installer window. The user must exit the Installer window to relinquish control of the device.

8. The `SEG_DIRS` environment variable must be set if the `-p` parameter is not used. For ease of use, it is recommended that the `SEG_DIRS` environment variable be set to the path of the location of the segments.

4.3 TestInstall Tool

1. When running `TestInstall`, the `Program Manager` window may appear on top of the `TestInstall` window when adding icons. This does not indicate completion of the installation: the user must select the `TestInstall` window to view the rest of the installation.
2. The `AcctGrp` descriptor only supports one entry. If multiple entries exist, only the first account group is created.
3. `TestInstall` does not support distributions. It supports segment test installation only.

4.4 TestRemove Tool

1. `TestRemove` does not remove services, groups, or password file entries.
2. `TestRemove` does not support distributions. It supports segment test removal only.

4.5 TimeStamp Tool

1. If a valid version line cannot be identified and no command line parameters are given, `TimeStamp` returns an error.

4.6 VerifySeg Tool

1. The `-f` option has not been implemented for `VerifySeg`.
2. `VerifySeg` cannot be run against a segment on a write-protected diskette because it needs to update the validated file within `SegDescrip`.
3. `VerifySeg` does not check the syntax of version numbers listed in the `Compat Segment Descriptor` file.
4. `VerifySeg` performs keyword parsing (searches for keywords and their associated fields) but does not perform validity (bounds or data field) checking in the

Conflicts or VERSION descriptor file.

5. VerifySeg does not perform checking in the FilesList Segment Descriptor file.
6. VerifySeg performs validity checking (bounds or data field) on keywords but not on data associated with keywords (e.g., disk size in the Hardware Segment Descriptor file).
7. VerifySeg does not check keyword combination or keyword and segment type constraints in the Hardware Segment Descriptor file.

4.7 VerUpdate Tool

1. If a valid version line in the version file cannot be identified and no command line parameters are given, VerUpdate returns an error.